WASHINGTON STATE DEPARTMENT OF **Natural Resources**

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APPLICATION FOR RECLAMATION PERMIT FORM SM-8A

Check appropriate box(es): ☐ new permit ☐ revision of existing permit ☐ transfer of permit ☒ expansion

NOTE: Do not attempt to complete this form until you have carefully read the accompanying instruction document (SM8AINST.PDF). Do not attempt to use this form as an MS Word Template unless you are familiar with the use of templates in MS Word.

1. NAME OF APPLICANT/PERMIT HOLDER(S)
FRED HILL MATERIALS, INC.

2. MAILING ADDRESS
P.O. BOX 6
POULSBO, WA 98370

3. Telephone (360) 779-4431
UBI No. 183 000 595

4. NAME OF MINE
CAYS ROAD PIT

5. Street address and milepost of surface mine
1369 CAYS ROAD
SEQUIM, WA 98382

12. Are all of these mines now in compliance with RCW 78.44, WAC 332-18, and conditions of the permits? ☒ yes ☐ no

13. Have you ever had a surface mine operating or reclamation permit revoked? ☐ yes ☒ no

Have you ever had a reclamation security forfeited? ☐ yes ☒ no
If you answered yes to either of the above, list the permit number(s):

14. Type of proposed or existing mine: ☒ pit ☐ quarry
Material(s) to be mined: ☒ sand and gravel ☐ rock or stone ☐ clay ☐ metal ☐ limestone ☐ silica ☐ other ____

Deposit type: ☒ glacial ☐ river floodplain (alluvial) ☐ river channel deposits ☐ talus ☐ bedrock ☐ lode ☐ unknown ☐ other ____

15. Total Acreage and Depth of Permit Area: **57 acres**
(Include all acreage to be disturbed by mining, setbacks, buffers, and associated activities during the life of the mine.) (See Form SM-6.)

Total area disturbed will be 48 acres.
Area to be disturbed in next 36 months will be **n/a** acres.
Note: All acreage to be disturbed has been disturbed at this point in time. Additional depth of mining may occur in some areas, not to exceed maximum vertical depth listed below.
Maximum vertical depth below pre-mining topographic grade is 110 feet.
Maximum depth of excavated mine floor is 41 feet relative to mean sea level
(Location: Northern pit floor)

16. Expected start date of mining: **Ongoing**

17. Estimated number of years: **8-10**

6. Distance (miles): **4.5**

7. Direction from: **NORTHWEST**

8. Nearest community: **SEQUIM**

18. Total quantity to be mined over life of mine (estimated): **Unknown – mine has been in operation for many years** ☐ tons, or ☐ cu yds

19. Estimated annual production: **25,000** ☒ tons, or ☐ cu yds

9. COUNTY **CLALLAM**
No attachments will be accepted. Legal Description of permit area:

1/4	1/4	Section	Township	Range
NE	NE	3	30N	4W
SE	SE	34	31N	4W

20. Subsequent land use: ☐ industrial ☐ commercial ☒ residential ☐ agricultural ☐ forestry ☐ wetlands and lakes ☐ Other ____

Reclaimed elevation of floor of mine: 46-50 feet relative to mean sea level

Reclaimed elevation is shown on cross sections? ☒ yes ☐ no

Subsequent land use is compatible with County or Municipal comprehensive plan? ☒ yes ☐ no

County or Municipality Approval for Surface Mining (Form SM-6) attached? ☒ yes ☐ no

SEPA Checklist required? ☒ yes ☐ no

If any answers are no, explain: ____

10. TOTAL ACREAGE OF PERMIT AREA APPLIED FOR
(include all acreage to be disturbed by mining, setbacks, buffers, and associated activities during the life of the mine.)
57 acres

11. Do you or any person, partnership, or corporation associated with you now hold, or have you held, a surface mining operating or reclamation permit? ☒ yes ☐ no

If you answered yes to the above, please list:

Permit Number	Active Operation?		Reclamation current/complete?	
	Yes	No	Yes	No
70-011936	☒	☐	☒	☐
70-011462	☒	☐	☒	☐
70-012639	☐	☒	☒	☐
	☐	☐	☐	☐

21. Application fee for a new reclamation permit is herewith attached? ☐ yes ☒ no

CHECKLIST OF RECLAMATION STANDARDS

22. SEQUENTIAL RECLAMATION

Permit area has been divided into segments for mining and a mining schedule has been developed? ☒ yes ☐ no
If no, explain:

Permit area has been divided into segments for reclamation and a reclamation schedule has been developed? ☒ yes ☐ no
If no, explain:

23. SITE PREPARATION

23A. Permit and Disturbed Area Boundaries

Boundary of the permit area has been marked on the ground with permanent boundary markers? ☒ yes ☐ no
Explain boundary markers: **The corners of the Cays Road permit area, parcels owned by Blake Trucking Co., are marked with rebar and cap by Clark Land Office PLLC.**

23B. Saving Topsoil, Subsoil, and Overburden for Reclamation

Thickness of topsoil is **0.33** feet
Thickness of subsoil is **Variable** feet
Depth to bedrock is **n/a** feet
Total volume of topsoil is **106,000** cubic yards
Total volume of subsoil is **Unknown (not stockpiled)** cubic yards
Volume of stored topsoil/subsoil is **106,000 (stored in exterior berm)** cubic yards and will require **4.4** acres for storage.

Storage areas are shown on maps and have been marked on the ground with permanent boundary markers? ☒ yes ☐ no

Topsoil will be salvaged? ☒ yes ☐ no
If no, explain:

Topsoil and overburden will be moved to reclaim an adjacent depleted segment? ☒ yes ☐ no
If no, explain:

Before materials are moved, vegetation will be cleared and drainage planned for soil storage areas? ☒ yes ☐ no
If no, explain:

Soil storage areas will be stabilized with vegetation to prevent erosion if materials will be stored for more than one season? ☒ yes ☐ no
If no, explain:

23C. Setbacks and Screens

Maximum depth of the mine will be **110** feet from **151** feet (*highest*) to **41** feet (*lowest*) elevation relative to mean sea level. **This is the maximum relief. Typical mining depth is 30-75 feet.**

The setback for this site will be **30** feet wide.

Is a permanent, undisturbed buffer planned for this site? ☒ yes ☐ no
If no, explain:

Setbacks are shown on maps and have been marked on the ground with permanent boundary markers? ☒ yes ☐ no
If no, explain: **Setbacks are shown on the maps. Setbacks are located behind the top of slope, which indicates the extent of mining. No new mining will occur on these slopes.**

CHECKLIST OF RECLAMATION STANDARDS

Does this site have a backfilling plan that addresses the protection of adjacent property and how the final, stable slopes are to be achieved? ☒ yes ☐ no
If no, explain:

23D. Buffers to Protect Streams and Flood Plains

If yes, see "Additional Information Requirements for Flood Plain Mines." This document is included in the SM8AINST.PDF file.

A stream buffer of at least 200 feet has been marked on the ground with permanent boundary markers? ☐ yes ☒ no

A buffer of at least 200 feet from the 100-year flood plain has been marked on the ground with permanent boundary markers? ☐ yes ☒ no
If no, explain: **No streams or flood plains are located within 200 feet of the permit boundary**

Copy of Shoreline Permit from local government or the Dept of Ecology is attached? **Not applicable.** ☐ yes ☒ no

Hydraulic Project Approval from the Department of Fish and Wildlife is attached? **Not applicable.** ☐ yes ☒ no

23E. Conservation Buffers

Conservation buffers will be established for the following purpose(s): (*Check all that apply*)
☐ unstable slopes ☐ wildlife habitat ☐ water quality ☐ other ____

Describe the nature and configuration of the conservation buffer(s): **None proposed.**

Conservation setbacks are shown on maps and have been marked on the ground with permanent boundary markers? **Not applicable.** ☐ yes ☒ no

23F. Ground Water

High water table depth is 35 feet ☒ relative to mean sea level, ☐ below original surface, or ☐ unknown.
59 feet in southern portion
Low water table depth is **unknown** feet ☒ relative to mean sea level, ☐ below original surface, or ☐ unknown.

Annual fluctuation of water table is from **xx** feet on **xx** to **xx** feet on **unknown**

Direction of ground water flow: **Northeast**

Are well logs attached? ☐ yes ☒ no

Is the aquifer perched? ☒ yes ☐ no

Is the shallowest aquifer: ☐ confined ☒ unconfined

The site will be mined: ☐ wet ☒ dry ☐ both

Describe mining method: **Maximum depth of mining will vary between 42-46 foot elevations depending on the location within the mining disturbance boundary . A sinuous post-mining topography will be constructed during backfill operations where slopes will be created no steeper than 1.5H:1V. Typical slopes will be in the range of 2:1 to 3:1. The perimeter of the mining disturbance area is sinuously joined to the existing contours surrounding the site. At this point in the life of the mine, no further vertical excavation will occur on the floor of the mine.**

The site is in a:
☐ critical aquifer recharge area ☐ sole source aquifer ☐ public water supply watershed
☐ wellhead protection area ☐ special protection area ☐ designated aquifer protection area

Ground water study attached? ☐ yes ☒ no
If yes, see "Additional Information Requirements for Hydrologically Sensitive Areas." This document is included in the SM8AINST.PDF file.
If no, explain:

23G. Archeology

Are archeological/cultural resource sites present? ☐ yes ☒ no
If yes, describe how you will protect these resources:

24. MINING PRACTICES TO FACILITATE RECLAMATION

24A. Soil Replacement

Topsoil will be saved? ☒ yes ☐ no
If no, explain:

CHECKLIST OF RECLAMATION STANDARDS

Up to 4 feet of topsoil and (or) subsoil will be restored? ☒ yes ☐ no
If no, explain:

Topsoil will be restored and seedbeds prepared as necessary to promote effective revegetation and to stabilize slopes and mine floor? ☒ yes ☐ no
If "yes" give details, if "no", explain: **All topsoil has previously been removed prior to mining and stockpiled in berms along the northern mine perimeter. Topsoil will be replaced at an average depth of 4 inches on all mined areas to re-establish a rooting medium as close as possible to pre-mining conditions. No significant topsoil deficit is expected at the completion of mining. Pond fines will be used to augment the existing topsoil stockpiles. Reclaimed sites will be ripped to reduce compaction and promote deep rooting. Slopes will be ripped on contour (parallel with slope) to minimize erosion. Topsoil will be replaced evenly over the graded slopes with scrapers or truck-dozer operations. Dozers and or backhoes may be used to configure the final slope and prepare the seedbed. Some micro relief in the reclaimed surface, such as shallow depressions and ridges, will be left from ripping and topsoil replacement operations. Interceptor swales will be constructed along the cross-slope of tall slopes to prevent erosion of placed topsoil.**

Subsoil will be replaced to an approximate depth of **n/a** feet on the pit floor and a depth of **n/a** feet on slopes.

Topsoil will be replaced to an approximate depth of **0.33** feet on the pit floor and a depth of **0.33** feet on slopes.

Topsoil will be distributed evenly over the site? ☒ yes ☐ no
If no, explain:

If topsoil is in short supply, it will be strategically placed in depressions and low areas in adequate thickness to conserve moisture and promote revegetation? ☒ yes ☐ no
If no, explain:

Topsoil will be moved when conditions are not overly wet or dry? ☒ yes ☐ no
If no, explain:

Topsoil will be imported? ☐ yes ☒ no
If yes, describe source. If no, explain: **No significant topsoil deficit is expected at the completion of mining. See Topsoil Budget for breakdown of topsoil available in each mining segment.**

Synthetic topsoil made from compost, biosolids, or other amendments will be used and (or) made on site to supplement existing topsoil? ☐ yes ☒ no
If yes, explain:

Materials such as till, loess, and (or) silt are available on site that could be used to supplement topsoil for reclamation. ☒ yes ☐ no
If yes, explain: **Some silt material is present at the site and will be used to increase moisture content of soils to encourage plant growth.**

Silt from settling ponds or a filter press will be used for reclamation? ☒ yes ☐ no
If yes, explain: **Pond fines may be used to augment existing stockpiles of topsoil for reclamation purposes.**

CHECKLIST OF RECLAMATION STANDARDS

Settling pond clay slurries will be pumped or hauled to other segments for reclamation? ☐ yes ☒ no
If yes, explain:

Topsoil will be replaced with equipment that will minimize compaction, or it will be plowed, disked, or ripped following placement? ☒ yes ☐ no
If no, explain:

Topsoil will be immediately stabilized with grasses and legumes to prevent loss by erosion, slumping, or crusting? ☒ yes ☐ no
If no, explain:

Topsoil stockpile areas are shown on maps and will be marked on the ground with permanent boundary markers to protect from loss? ☒ yes ☐ no
If no, explain:

Segmental topsoil removal and replacement is shown on maps? ☒ yes ☐ no
If no, explain:

Topsoil salvage and replacement plan included? ☒ yes ☐ no
If no, explain:

24B. Removal of Vegetation

Vegetation will be removed sequentially from areas to be mined to prevent unnecessary erosion? ☒ yes ☐ no
If no, explain:

Small trees and other transplantable vegetation will be salvaged for use in revegetating other segments? ☐ yes ☒ no
If yes, give details. If no, explain: **There are no small trees or other appropriate vegetation existing on-site for use in revegetation.**

Wood and other organic debris will be:
☐ recycled ☐ removed from site ☐ chipped ☐ burned ☐ buried ☐ used to synthesize topsoil or mulch
☒ other (*explain*) **Placed on reclaimed slopes for wildlife habitat and to inoculate soil with native seeds.**
Solid waste disposal, burning, and land use permits are attached? N/A ☐ yes ☒ no

Some coarse wood (logs, stumps) and other large debris will be salvaged for fish and wildlife habitats? ☒ yes ☐ no
If yes, give details. If no, explain: **Logs and stumps (woody debris), when available, will be placed on reclaimed slopes for wildlife habitat and to inoculate soil with native seeds.**

24C. Erosion control for Reclamation

Pit floor will slope at gentle angles toward highwall, sediment retention pond, or proper drainage? ☒ yes ☐ no
If yes, give details. If no, explain:

CHECKLIST OF RECLAMATION STANDARDS

Revegetation, sheeting, and (or) matting will be used to protect areas susceptible to erosion?	☒ yes ☐ no
If yes, give details. If no, explain: **Slopes will be planted with quick growing grasses, groundcovers, and ed alder to provide erosion control. Tree roots will help hold soil in place.**	
Water control systems used for erosion control during segmental reclamation will:	
Divert clean water around pit?	☒ yes ☐ no
Trap sediment-laden runoff before it enters a stream?	☒ yes ☐ no
Result in essentially natural conditions of volume, velocity, and turbidity?	☒ yes ☐ no
Handle a 25-year, 24-hour peak event?	☒ yes ☐ no
*(Have you attached calculation?)***See Reclamation Narrative**	☒ yes ☐ no
Be removed or reclaimed?	☐ yes ☒ no
If any answers are no, explain: **Stormwater at the site will be infiltrated and will not be allowed to leave the site. Stormwater is infiltrated in local depressions created during grading and reclamation of the site. These infiltration areas will be left in place permanently. After reclamation, but during continued operation of the concrete batch plant, stormwater discharge form the plant area will be pumped to a settling and infiltration pond.**	
Will any water control systems be removed upon final reclamation?	☐ yes ☒ no
If yes, explain:	
Water control measure will be established to prevent erosion of setbacks and neighboring properties?	☒ yes ☐ no
If yes, give details. If no, explain: **All stormwater will be infiltrated within the permit area. No water is expected to leave the site.**	
torm-water conveyance ditches and channels will be lined with vegetation or riprap?	☒ yes ☐ no
If yes, give details. If no, explain: **Interceptor swales will be planted along with the entire segment. Vegetation will help prevent erosion of native soils.**	
Natural and other drainage channels will be kept free of equipment, wastes, stockpiles, and overburden?	☒ yes ☐ no
If no, explain:	

25. RECLAMATION TOPOGRAPHY

25A. Final Slopes

Final slopes will be created using the cut-and-fill method?	☒ yes ☐ no
Explain procedure to be used: **Mining cut slopes have already been created. Backfill will be necessary to create slopes suitable for future residential development. See Reclamation Narrative for a detailed Backfill Plan.**	
Slopes will be created by mining to the final slope using the cut method?	☐ yes ☒ no
Explain procedure to be used:	
Slopes will vary in steepness?	☒ yes ☐ no
If no, explain:	
Slopes will have a sinuous appearance in both profile and plan view?	☒ yes ☐ no
If no, explain:	

CHECKLIST OF RECLAMATION STANDARDS

Large rectilinear (that is, right angle, or straight, planar) areas will be eliminated? ☒ yes ☐ no
If no, explain:

Where reasonable, tracks of the final equipment pass will be preserved and oriented to trap moisture, soil, and seeds, and to inhibit erosion? ☒ yes ☐ no
If no, explain:

25B. Slope Requirements for Pits and Overburden/Waste Rock Dumps (non-saleable products)

If the mine is a quarry or in hard rock, skip to Quarry section(25C).

Slopes will vary between 2 and 3 feet horizontal to 1 foot vertical or flatter, except in limited areas where steeper slopes are necessary to create sinuous topography and control drainage? ☒ yes ☐ no
If no, explain:

For pits, slopes will not exceed 2 feet horizontal to 1 foot vertical except as necessary to blend with adjacent natural slopes? ☒ yes ☐ no
Give details: **A sinuous post-mining topography will be constructed during post-mining grading operations where slopes will be contoured no steeper than 2H:1V, except where necessary to match existing grades. See Reclamation Narrative for further details.**

Slope stability analysis required? ☐ yes ☒ no
If yes, see "Additional Information Requirements for Mines with Potentially Unstable or Steep Slopes." This document is included in the SM8AINST.PDF file.
Slope stability analysis provided by ____

25C. Slope Requirements for Quarries and Hardrock Metal Mines

If mine is a pit in unconsolidated materials covered by Section 25B, go to Section 25D

Check the appropriate box(es)
☐ Slopes will not exceed 2 feet horizontal to 1 foot vertical.
☐ Slopes steeper than 1 foot horizontal to 1 foot vertical are an acceptable subsequent land use as confirmed on Form SM-6.
☐ Hazardous slopes or cliffs are indigenous to the immediate area and already present a potential threat to human life. Photo and maps attached to document presence of cliffs.
☐ Geologic or topographic characteristics of the site preclude slopes being reclaimed at a flatter angle and are an acceptable subsequent land use as confirmed on Form SM-6.

Slope stability analysis required? ☐ yes ☐ no
If yes, see "Additional Information Requirements for Mines with Potentially Unstable or Steep Slopes." This document is included in the SM8AINST.PDF file.
Slope stability analysis provided by ____

Measures will be taken to limit access to the top and bottom of hazardous slopes? ☐ yes ☐ no
Describe measures, or if no, explain:

Selective blasting will be used to remove benches and walls and to create chutes, buttresses, spurs, scree slopes, and rough cliff faces that appear natural? ☐ yes ☐ no
Describe procedures, or if no, explain:

Reclamation blasting will be used to reduce the entire highwall to a scree or rubble slope less than 2 feet horizontal to 1 foot vertical? ☐ yes ☐ no
Blasting plan is attached? ☐ yes ☐ no
If no, explain:

CHECKLIST OF RECLAMATION STANDARDS

Access to benches will be maintained for reclamation blasting? If no, explain:	☐ yes ☐ no
Small portions of benches will be left to provide habitat for raptors and other cliff-dwelling birds?	☐ yes ☐ no
25D. Backfilling	
Slopes will require backfilling? Depth of backfilling is 35 feet. Slope stability compaction analysis required? Compaction analysis provided by	☒ yes ☐ no ☐ yes ☒ no
Backfilling plan and (or) permits are attached? If no, explain: **See Reclamation Narrative for backfill plan.**	☒ yes ☐ no
Backfilling will be done with overburden material after topsoil has been separated? If no, describe composition and source of backfill material: Explain method of placement of fill: **Fill will be placed in lifts of 6"-8" across the mined slopes and mine floor (as necessary to achieve minimum slopes). Slopes will be ripped on contour (parallel with slope) to minimize erosion. Fill will be placed evenly and graded into sinuous slopes with scrapers or truck-dozer operations. Dozers and or backhoes may be used to configure the final slope and prepare the seedbed.**	☒ yes ☐ no
Locations of stockpiles are shown on maps and will be marked on the ground with permanent boundary markers?	☒ yes ☐ no
Will backfill be imported? If yes, give volumes needed to meet reclamation plan:	☐ yes ☒ no 8/4/09
Areas to be backfilled are shown on maps? If no, explain:	☒ yes ☐ no
All grading/backfilling will be done with clean, inert, non-organic solids? If yes, give details. If no, explain:	☒ yes ☐ no
Backfilled slopes will be compacted? If yes, give details. If no, explain: **Backfill will be placed in lifts of 6"-8" and compacted by repeated runs of dozers, backhoes, scrapers, and other grading equipment.**	☒ yes ☐ no
Will you be backfilling into water? **N/A –No open water is proposed at the site** If yes, is slope stability analysis attached? If yes, describe method:	☐ yes ☒ no ☐ yes ☐ no

CHECKLIST OF RECLAMATION STANDARDS

25E. Mine Floors

Flat areas will be formed into gently rolling mounds? ☒ yes ☐ no
If yes, give details. If no, Explain: **Pit floors will vary in shape, providing topography that emulates a natural landscape.**

Mine floor will be gently graded into sinuous drainage channels to preclude sheetwash erosion during intense precipitation? ☒ yes ☐ no
If yes, give details. If no, explain: **Varying high and low points will be created during final grading and shaping of the pit floor which will allow stormwater to infiltrate at numerous locations.**

Mine floor and other compacted areas will be bulldozed, plowed, ripped, or blasted to foster revegetation? ☒ yes ☐ no
If yes, give details. If no, explain: **Reclaimed sites will be ripped to reduce compaction and promote deep rooting. Slopes will be ripped on contour (parallel with slope) to minimize erosion. Dozers and or backhoes may be used to configure the final slope and prepare the seedbed. Some micro relief in the reclaimed surface, such as shallow depressions and ridges, will be left from ripping and topsoil replacement operations.**

25F. Lakes, Ponds, and Wetlands

Is water currently present in the area or will the mining penetrate the water table? ☐ yes ☒ no
If no, go to Section 25G.

Reclaimed areas below the permanent low water table in soil, sand, gravel, and other unconsolidated material will have a slope no steeper than 1.5 feet horizontal to 1 foot vertical? ☐ yes ☐ no
If yes, give details. If no, explain:

If not already present, soils, silts, and clay-bearing material will be placed below water level to enhance revegetation? ☐ yes ☐ no
If yes, give details. If no, explain:

Some parts of pond and lake banks will be shaped so that a person can escape from the water? ☐ yes ☐ no
If yes, give details. If no, explain:

Armored spillways or other measures to prevent undesirable overflow or seepage will be provided to stabilize bodies of water and adjacent slopes? ☐ yes ☐ no
If yes, give details. If no, explain:

Wildlife habitat will be developed, incorporating such measures as:
- Sinuous and irregular shorelines? ☐ yes ☐ no
- Varied water depths? ☐ yes ☐ no
- Shallow areas less than 18 inches deep? ☐ yes ☐ no
- Islands and peninsulas? ☐ yes ☐ no

Give details:

CHECKLIST OF RECLAMATION STANDARDS

Ponds or basins will:

Be located in stable areas?	☐ yes	☐ no
Have sufficient volume for expected runoff?	☐ yes	☐ no
Have an emergency overflow spillway?	☐ yes	☐ no
Spillways and outfalls will be protected (for example, rock armor) to prevent failure and erosion?	☐ yes	☐ no

If any answers are no, explain:

Proper measures will be taken to prevent seepage from water impoundments that could cause flooding outside the permitted area or adversely affect the stability of impoundment dams or adjacent slopes? ☐ yes ☐ no
If yes, give details. If no, explain:

Written approval from other agencies with jurisdiction to regulate impoundment of water is attached? ☐ yes ☐ no
If no, explain:

25G. FINAL DRAINAGE CONFIGURATION

Drainage will be capable of carrying the peak flow of the 25-year, 24-hour precipitation event (*Data are available at DNR Region offices*) ☒ yes ☐ no
If yes, are calculations attached? ☒ yes ☐ no
If yes, give details. If no, explain: **Due to the high permeability of soils and the porous nature of gravelly substratum on site, infiltration is anticipated to be fairly rapid in the vicinity of the pit. Based on field observations there is no evidence of standing water and no sign of erosion on the disturbed or undisturbed areas of the property. All potential runoff will be contained within the mining disturbance area; no runoff during heavy storm events is expected. See Stormwater Calculations attached to the Reclamation Narrative.**

Drainages will be constructed on each reclaimed segment to control surface water, erosion, and siltation? ☒ yes ☐ no
Clean runoff is directed to a safe outlet? ☐ yes ☒ no
If either yes, give details. If no, explain: **No stormwater is directed off site. All stormwater is expected to infiltrate on site.**

Are these shown on maps? ☒ yes ☐ no

The grade of ditches and channels will be constructed to limit erosion and siltation? ☒ yes ☐ no
If yes, give details. If no, explain: **Varying high and low points will be created during final grading and shaping of the pit floor, serving as natural swales, which will further allow stormwater to infiltrate.**

Natural-appearing drainage channels will be established upon reclamation? ☒ yes ☐ no
If yes, give details. If no, explain: **Varying high and low points will be created during final grading and shaping of the pit floor, serving as natural swales, which will further allow stormwater to infiltrate.**

26. SITE CLEANUP AND PREPARATION FOR REVEGETATION

26A. Dealing with Hazardous Materials

Hazardous materials are present at the mine site? ☐ yes ☒ no
If no, go to Section 26B

The final ground surface drains away from any hazardous natural materials? ☐ yes ☐ no
If yes, give details. If no, explain:

Plan for handling hazardous mineral wastes indigenous to the site is attached? ☐ yes ☐ no

CHECKLIST OF RECLAMATION STANDARDS

If no, written approval from all appropriate solid waste regulatory agencies attached? ☐ yes ☐ no

26B. Removal of Debris

All debris (garbage, 'bone piles', treated wood, old mining equipment, etc.) will be removed from the mine site? ☒ yes ☐ no
All sheds, scale houses, and other structures will be removed from the site? ☒ yes ☐ no
If either answer is yes, give details. If no, explain: **All debris and extraneaous structures will be removed from the mine site after final mining and reclamation is complete. The existing concrete batch plant, maintenance facility, and associated structures will remain and continue in operation to support the concrete batch plant.**

27. REVEGETATION

The mine site is in: ☐ eastern Washington ☒ western Washington

The mine site is: ☐ wet ☒ dry?

The average precipitation is **21 inches** per year.

Revegetation will start during the first proper growing season (fall for grasses and legumes, fall or late winter for trees and shrubs) following restoration of slopes? ☒ yes ☐ no
If yes, give details. If no, explain: **See Reclamation Narrative.**

Test plots will be used to determine optimum vegetation plans? ☐ yes ☒ no

The site will not be revegetated because:

☐ It is a rural area with a rainfall exceeding 30 inches annually and erosion will not be a problem (requires approval of DNR).

☐ Demonstration plots and areas will be used to show that active revegetation is not necessary.

☐ Revegetation is inappropriate for the approved subsequent use of this surface mine.

Explain:

Documentation is attached? ☐ yes ☐ no

27A. Recommended Pioneer Species

In the Sections below, check the species that will be planted at your mine site:
**** indicates nitrogen-fixing species***

Western Washington Dry Areas

☐ alfalfa*	☒ Lupine*	☐ clover*	☐ orchard grass
☐ cereal rye	☒ perennial rye	☐ colonial bent grass	☐ ponderosa pine
☒ creeping red fescue	☒ red alder*	☐ Douglas fir	☐ shore pine
☒ ground cover	☐ shrubs	☐ other	

Western Washington Wet Areas

☐ birdsfoot trefoil	☐ sedges	☐ cedar	☐ tubers
☐ cottonwood	☐ wetland grasses	☐ creeping red fescue	☐ willow
☐ red alder*	☐ other		

Eastern Washington Dry Areas

☐ alder*	☐ grasses	☐ alfalfa*	☐ juniper
☐ black locust	☐ lodgepole pine	☐ clover	☐ lupine*
☐ deciduous trees	☐ ponderosa pine	☐ shrubs	☐ deep-rooted ground cover
☐ diverse evergreens	☐ other		

Eastern Washington Wet Areas

☐ alder*	☐ cottonwood	☐ poplar	☐ sedges
☐ serviceberry	☐ tubers	☐ willow	
☐ other			

CHECKLIST OF RECLAMATION STANDARDS

Give planting details (stems/acres of trees and shrubs, see Forest Practices manual; lbs/acre of grass, legume, or forb mixture):
The predominant plant scheme will be consist of grasses, volunteer mustard and lupine, and other groundcovers. Red alder will be planted in clumps along the slopes to provide additional erosion control. Bareroot trees will be supplied by a local nursery and from within the proper seed zone. Broadcast fertilization may be used if necessary.

Describe weed control plan:
Weedy species will be controlled by hand removal, mechanical removal, or herbicide use, as necessary.

27B. Planting Techniques

Revegetation at this site will require:

Ripping and tilling?	☒ yes	☐ no
Blasting to create permeability?	☐ yes	☒ no
Mulching?	☐ yes	☒ no
Irrigation?	☐ yes	☒ no
Fertilization?	☒ yes	☐ no
Importation of clay- or humus-bearing soils?	☐ yes	☒ no
Other soil conditioners or amendments?	☐ yes	☒ no

Give details: **See Reclamation Narrative for details on site preparation for planting.**

Trees and shrubs will be planted in topsoil or in subsoil amended with generous amounts of organic matter? ☒ yes ☐ no
If yes, give details. If no, explain: **Trees will be planted in topsoil depths of 4 inches, the depth of existing topsoil.**

Mulch will be piled around the base of trees and shrubs?	☐ yes	☒ no
High quality stock will be used?	☒ yes	☐ no
Trees and shrubs will be planted while they are dormant?	☒ yes	☐ no
Stock will be properly handled, kept cool and moist, and planted as soon as possible?	☒ yes	☐ no
Seeds will be covered with topsoil or mulch no deeper than one-half inch?	☒ yes	☐ no

If any answers are no, explain: **Mulch is not proposed at this site. Ripping and micro-topography in the pit will help provide needed moisture for plants. Native soils with a high fine content will augment the topsoil placed at the site.**

28. FINAL CHECKLIST

All required maps are attached (***See Instructions for detailed requirements***)?	☒ yes	☐ no
All required cross-sections are attached (***See Instructions for detailed requirements***)?	☒ yes	☐ no
Geologic map attached (if required)?	☐ yes	☒ no
All documents submitted have the date, the name and address of the permit holder, and the application number on every page of the material?	☒ yes	☐ no
The plan contains predominantly relevant information?	☒ yes	☐ no
Have you completed the SM-6 and has it been signed by the local jurisdiction?	☒ yes	☐ no
Have you provided the SEPA checklist?	☒ yes	☐ no
Have you provided a copy of the SEPA Determination (DNS, MDNS, or DS)? **To be determined.**	☐ yes	☒ no
Have you attached photographs?	☐ yes	☒ no
Are additional supplemental studies included?	☒ yes	☐ no

If yes, check the appropriate box(es) below:

☐ Archeological ☐ Geohydrologic ☒ Backfill ☐ Slope stability
☐ Topsoil ☐ Flood plain ☐ Conservational ☐ Vegetation
☐ Other

Other permits required? ☒ yes ☐ no
If yes, check the appropriate box(es) below:

☐ Shoreline permit ☐ Water Discharge Permit ☐ Solid Waste Permit
☐ Air Quality Permit ☒ NPDS or General Discharge Permit ☐ Hydraulic Project Approval
☐ Special or Conditional Use Permit ☐ Other

CHECKLIST OF RECLAMATION STANDARDS

When signed by the applicant and approved by the Department of Natural Resources, this document and the associated maps, cross sections, reclamation narrative, and other attachments will be the approved reclamation plan for this permit that the permit holder must follow. Significant variations from the approved reclamation plan may require that a new plan be submitted to the Department for approval.

The applicant shall be considered as the permit holder for this surface mine and shall be responsible for compliance with Chapter 78.44 RCW, Chapter 332-18 WAC, the approved reclamation plan and attachments, and the conditions of the permit if issued by the Department of Natural Resources.

I hereby agree to comply with this plan. *Signature of applicant or company representative*	Name and Title of Company Representative (*Please print*)	Date signed
Alex J. Hill	Alex Hill PRESIDENT	5-12-04

SURFACE OWNERSHIP

Give names, addresses, and signatures of all individuals with possessory interest in land.
(attach signed copies of this page if more than one)
I verify that the applicant has my permission to mine from my land.

Signature of landowner(s) — *Date Signed*
David A Blake 5/7/04

I hereby verify that I have seen and approved this plan.

Signature of landowner(s) — *Date Signed*
David A Blake 5/7/04

OWERSHIP OF RIGHTS TO REMOVE MINERALS BY SURFACE MINING

Give names, addresses, and signatures of all individuals with rights.
(attach signed copies of this page if more than one)
I verify that the applicant has my permission to mine this land.

Signature of rights owner(s) — *Date Signed*
David A Blake 5/7/04

I hereby verify that I have seen and approved this plan.

Signature of rights owner(s) — *Date Signed*
David A Blake 5/7/04

FOR DEPARTMENTAL USE ONLY

Date accepted	Accepted by:	Title:	Reclamation Permit No.

Comments by Department:

RECEIVED
JUN 0 3 2004
Geology and Earth

WASHINGTON STATE DEPARTMENT OF
Natural Resources

COUNTY OR MUNICIPALITY APPROVAL FOR SURFACE MINING (Form SM-6)

NAME OF COMPANY OR INDIVIDUAL APPLICANT(S)
Same as name of the exploration permit holder. *(Type or print in ink.)*

FRED HILL MATERIALS

MAILING ADDRESS

P.O. BOX 6
POULSBO, WA 98370

Telephone (360) 779-4431

TOTAL ACREAGE AND DEPTH OF PERMIT AREA
(Include all acreage to be disturbed by mining, setbacks, and buffers, and associated activities during the life of the mine.) *(See SM-8A.)*

Total area disturbed will be 57 acres

Maximum vertical depth below pre-mining topographic grade is 110 feet

Maximum depth of excavated mine floor is 41 feet relative to mean sea level

COUNTY CLALLAM

No attachments will be accepted. Legal description of permit area:

1/4	1/4	Section	Township	Range
NE	NE	3	30N	4W
SE	SE	34	31N	4W

Proposed subsequent use of site upon completion of reclamation

R2 - Single Family Residential
Continued Operation of Existing, Nonconforming Concrete Batch Plant on 14 acres

Signature of company representative or individual applicant(s)	Name and title of company representative *(please print)*	Date signed
Alex J. Hill	ALEX J. HILL, PRESIDENT	3/25/04

TO BE COMPLETED BY THE APPROPRIATE COUNTY OR MUNICIPALITY

Please answer the following questions 'yes' or 'no'.

	Yes	No
1. Has the proposed surface mine been approved under local zoning and land-use regulations? PRE-EXISTING NON-CONFORMING USE		✓
2. Is the proposed subsequent use of the land after reclamation consistent with the local land-use plan/designation? THE IMPORT OF MATERIAL FOR PROCESSING WILL REQUIRE CONDITIONAL USE PERMIT APPROVAL.	✓	

When complete, return this form to the appropriate Department of Natural Resources regional office.

Name of planning director or administrative official *(please print)*
ROBERT ROBERTSEN

Signature
Robert Robertsen

Title *(please print)*
DIRECTOR OF COMMUNITY DEV.

Address

Telephone
360-417-2323

Date
4/7/04

FOR DEPARTMENT USE ONLY

DNR Reclamation Permit No.
70-010004

1 – INTRODUCTION

On behalf of Fred Hill Materials, Inc. (FHM), Team 4 Engineering (Team 4) has prepared this reclamation plan for the Washington State Department of Natural Resources (DNR), pursuant to an expanded Surface Mining permit for the Cays Road Pit. The expansion is for depth only; the acreage of the permitted mine will remain the same. The operator and permit holder is FHM, property ownership is Blake Sand & Gravel. This reclamation plan, including the narrative, DNR forms, maps and figures, is intended to satisfy the DNR requirements as stated in *Chapter 78.44 Revised Code of Washington* (RCW). DNR SM-8A and SM-6 forms are included in Appendix A.

Fred Hill Materials, Inc. (FHM) has taken over operation of Cays Road Pit from Blake Sand & Gravel. The pit is almost mined out, but necessary reclamation still needs to occur at the site. After the site is mined out and reclamation is complete, the site will continue to be used for concrete batch production. Stockpiles of material both for the batch plant and for small construction jobs will be located on site. Stockpiled material will likely be transported by truck from the Shine Pit, located in Jefferson County.

Once again, this narrative is pursuant to a revision of a Surface Mining permit for the extraction of minerals from the Cays Road Pit and subsequent reclamation activities.

2 – SITE DESCRIPTION

2.1 – Site Location

Cays Road Pit is located within the following quarter sections:
NE ¼ ,NE ¼, Section 3, Township 30 North, Range 4 West,
SE ¼, SE ¼, Section 34, Township 31 North, Range 4 West,
W.M., in eastern Clallam County, Washington.

Specifically, the Cays Road Pit is located east of Cays Road, south of Lotzgesell Road, and north of Hogback Road (Sheet 1). The mine is located approximately 3.25 miles north of State Route 104, northwest of Sequim and north of Carlsborg. The street address assigned to the Cays Road Pit is 1369 Cays Road.

2.2 – Background

Cays Road Pit has been in continuous operation since 1956. It is an existing, nonconforming use in Clallam County. The concrete batch plant was constructed in 1970. It was upgraded and/or replaced in 1992. Blake Sand & Gravel prepared a revision to the existing DNR permit in 1995. The current zoning of the site is R2 – Rural Moderate. After the site is reclaimed, single-family residences may be constructed on the site. A portion of the site will remain in commercial use with the concrete batch plant, associated buildings, and associated material stockpiles.

In 2003, Fred Hill Materials took over operations of the pit. This expansion is being prepared by Fred Hill Materials to bring the permit up to date. Additional depth of mining had occurred during

the previous operator's activities and backfilling will be required to bring the slopes within DNR requirements.

In addition to the DNR permit, FHM operates under a Washington State Department of Ecology (DOE) Sand and Gravel General Permit (No. WAG 50-1001), which regulates the treatment and control of stormwater. All stormwater within the mining area of the Cays Road Pit is prevented from leaving the site through the application of infiltration techniques. The concrete batch plant runoff system includes an overflow pipe to the east ditch of Cays Road, which is tributary to Matriotti Creek.

Existing topsoil and non-commercial overburden material will be salvaged and used for reclaiming the site. Subsequently, the mined areas will be graded and covered with topsoil and overburden materials and then revegetated. The existing slopes on the site require backfill in order to meet the DNR standards for minimum slopes (Sheets 3 & 4).

2.3 – Subsequent Use

The reclamation plan proposes that for subsequent use the mined area will be developed for residential use, in accordance with the current zoning. The batch plant area, existing maintenance and operations buildings, stormwater facilities, and stockpile areas will remain in use after reclamation is complete. This area to remain to serve the continued production of concrete is approximately 14 acres.

Grasses and native groundcover species will be planted as part of the progressive, segmental reclamation proposed for the site. Red alder will be planted in small clumps along benches and slopes to promote water uptake and wildlife habitat. Refer to Section 6 - Revegetation Plan for details on planting specifications.

3 - GEOLOGY AND HYDROLOGY

3.1 – Regional And Site Geology

No further study of the regional geology has been performed at this time. The site is nearly mined out and no further expansions are proposed.

3.2 – Groundwater

Based on test pits and wells on site, there is a shallow groundwater system that varies in depth from 36 feet in the central portion of the site to 59 feet in the southern portion of the site. This is between approximately 5–85 feet below the existing ground surface (Sheet 4). Seasonal fluctuations in the shallow aquifer system appear negligible. Based on the water level data at the site, groundwater in the shallow aquifer flows to the northeast.

Two domestic production water supply wells are currently located on the site. One of these wells is located at the southeast corner of the parcel, south of the concrete batch plant. The second well is

located in the northern central portion of the site on the mine floor. These wells serve domestic supply for employees, dust control, and truck washing facilities.

A segmental reclamation plan will follow mining within the proposed permit boundary. A majority of the site has been mined out, with some scattered pockets of material remaining. Reclamation will be accelerated to catch up with the last mining activities proposed at the site.

The reclamation plan includes replacing topsoil over the pit floor and backfilled slopes. Pond fines may also be spread over the slopes and floor to add to the available moisture-retaining soils to facilitate revegetation.

The elevations of the areas to be reclaimed are above the top of the upper water-bearing zone and will also receive some backfill to increase the vertical distance between the upper water table and the finished grade (Sheet 4). The mine floor will be reclaimed at elevations ranging between 46 and 50 feet. Because reclamation activities are above the upper water-bearing zone, these activities should not adversely affect groundwater systems.

4 – MINING AND RECLAMATION

4.1 – Segmental Mining and Reclamation

The existing permit boundary for this site includes 57 acres. In order to minimize confusion between mining segments and reclamation sequencing, mining will be referred to in segments and reclamation referred to in phases. The mining disturbance area is divided into 8 mining segments, labeled A-H. Segments vary in size from 4 acres to 14 acres, with the largest segment being retained for continued activities associated with the concrete batch plant after reclamation is complete. Mining is followed by reclamation (Phases 1-8). Refer to Sheet 3.

Maximum vertical depth below pre-mining topographic grade is 110 feet, from elevation 41 to elevation 151 within the northern portion of the disturbed mining area (Sheets 1 and 4). Typical range of mining depth is between 30-75 feet. Maximum depth of the existing, excavated mine floor is 41 feet (Datum NAD 83). A sinuous post-mining topography will be constructed during and after mining operations where slopes will be reclaimed to no steeper than 2H:1V, except where blending to existing topography (1.5:1 max). Sheet 3 illustrates the final configuration of the reclaimed mine area upon completion of mining activities. The final elevation of the mined floor will range from elevation 46 to 50. The mined area will require backfilling because slopes have been previously mined steeper than 2:1. The perimeter of the mining disturbance area is sinuously joined to the existing contours surrounding the site.

Topsoil has previously been salvaged and stockpiled in a berm surrounding the mining area, along the 30-foot permanent buffer. Topsoil is considered a valuable resource for reclaiming the site and will be salvaged, stockpiled, and redistributed on reclaimed slopes.

4.2 – Topsoil and Subsoil Plan

Topsoil, pond fines, and overburden will be placed on the slopes and floor at depths ranging from 12-18 inches. All topsoil has been stockpiled in berms at the top of the existing mining slope. Overburden is also available within the mining area. Pond fines will be added to overburden and topsoil to enhance the ability of the topsoil to retain moisture.

No significant topsoil deficit is expected at the completion of mining. Refer to Table 4.1, Soil Budget for volume calculations and a mass balance of topsoil. Refer to Reclamation Sequence Map (Sheet 2) for location of topsoil stockpiles and topsoil distribution areas.

TABLE 4.1
TOPSOIL BUDGET

Parameters:
Assume 15" of available topsoil across mining site
Assume 3:1 average side slopes at final reclamation

Segment	Surface Area (sq. ft.)	Topsoil Available (c.y.)
A	318,000	14,700
B	183,000	8,500
C	217,800	10,100
D	135,000	6,300
E	183,000	8,500
F	305,000	14,100
G	344,000	16,000
H	601,000	27,800
TOTAL	2,286,400	106,000

TOPSOIL REQUIRED FOR RECLAMATION
Surface area of mine floor = 161,300 sq.ft. +/-
Perimeter of mining activity = 4,500 ft. +/-
Average depth of mining (measured at perimeter) = 60'
Depth of topsoil placed on slopes = 15"
Depth of topsoil placed on floor = 15"

Floor Volume = Surface area x depth = (161,300 s.f. x 1.25') / 27 =	7,500 c.y.
Slope Vol = Perimeter x slope distance x depth= 4,500 x 60/(sin 18 degrees) x 1.25/27 =	40,500 c.y.
(Slope distance = Avg. Height along perimeter/Sin 22 degrees)	
Segments D, E, G, H 1,261,300 s.f. x 1.25 / 27	58,500 c.y.
TOTAL	106,500 c.y.
TOTAL AVAILABLE =	106,000 c.y.
TOTAL REQUIRED=	106,500 c.y.
Shortage made up from pond fines	500 c.y.

Reclaimed sites will be ripped to reduce compaction and promote deep rooting. Slopes will be ripped on contour (parallel with slope) to minimize erosion. Topsoil will be replaced evenly over the graded slopes with scrapers or truck-dozer operations. Dozers and or backhoes may be used to configure the final slope and prepare the seedbed. Some micro relief in the reclaimed surface, such as shallow depressions and ridges, will be left from ripping and topsoil replacement operations. This micro topography will promote species diversity in the understory of the forest and assist in stormwater sediment capture during the initial years of reclamation. In addition, swales will be graded across the slopes to release captured stormwater and prevent erosion.

Topsoil will be handled only during conditions that are not overly wet or dry. Topsoil will be supplemented by pond fines and overburden. Topsoil and other reclaimed areas will be revegetated with prescribed species during the first fall or winter, after completion of backfill and grading, to stabilize the site. Topsoil stockpiles and temporary cut slopes will be "track walked" perpendicular to the slope and revegetated immediately to prevent erosion and promote stabilization.

4.3 – Backfilling

Backfilling is proposed for reclaiming this site. The slopes were mined to near vertical conditions and required backfilling to meet the minimum slope requirements. A 30-foot perimeter buffer has been retained around the site to protect adjacent properties. The perimeter of the mining disturbance area is designed to sinuously join the existing contours surrounding the site.

Backfill material will consist of existing overburden on the site and clean import from off-site. Oversize material, larger than 12 inches, must be buried at least 6 feet below the final grade surface. Fill will be compacted by numerous passes of heavy equipment over 6"-12" lifts. Fill depths range from 0 feet to 25 feet. The deepest fill will be located at the base of the existing vertical faces.

4.4 – Setbacks and Buffers

A permanent setback from the permit boundary of 30 feet has been assigned to this mine. The mining boundary is coincident with the setback boundary except a few small areas have been overexcavated (See Sheet 1). These areas are located in the vicinity of the power station along the southern boundary. Final slopes will be blended sinuously with the adjacent grades.

5 - EROSION CONTROL

5.1 – Existing and Proposed Stormwater

The majority of the site topography is undulating, sloping towards the central mining floor. Due to the high permeability of soils and the porous nature of gravelly substratum on site, infiltration is fairly rapid in the vicinity of the pit. There is little standing water, generally only located in areas compacted by trucks and mining equipment. There are few signs of erosion on the disturbed or undisturbed areas of the property. All potential runoff within the mining area will be contained within the mining disturbance area; no runoff during heavy storm events is expected. All stormwater is expected to infiltrate through the permeable topsoil and substrate.

The southern portion slopes south, away from the mine. Stormwater is collected in a series of catch basins and discharged to a settling tank. Historically, overflow from the tank was released to the ditch on the east side of Cays Road. Fred Hill Materials proposes to install a pump system that will discharge stormwater to the mining area for infiltration. In the event of a heavy rain storm, there may still be some discharge to the ditch if the water level reaches the overflow.

Stormwater calculations illustrating the infiltration of the 100-year storm event onsite are included in Appendix B. Because the 100-year storm is greater in magnitude than the 25-year storm, an analysis of the 100-year storm is more than adequate to meet DNR's requirement of an analysis of the 25-year storm.

Infiltration swales will be constructed on the pit floor, allowing Stormwater to infiltrate to groundwater. The pit floors will vary in shape, providing topography that emulates a natural landscape. Varying high and low points will be created during final grading and shaping of the pit floor, serving as natural swales, which will further allow stormwater to infiltrate. The soils on-site are very gravelly and permeable; therefore no surface water is expected to discharge from the site.

6 – REVEGETATION PLAN

6.1 - Open Space

After the slopes are graded and stable, a grass legume mix will be spread at 25 pounds per acre to promote wildlife forage. Fertilizer will be broadcasted at a rate of 200 lbs./acre in these areas, on an as needed basis. A combination of volunteer mustard and lupine combined with planted clover, grasses, and other groundcovers will provide soil stabilization, soil nutrients, wildlife forage and long-term reclamation goals for the site. Pockets of red alder will be planted along the slopes to assist in soil stabilization and water uptake. This planting scheme can be substituted with a comparable mix of native species. Where practical, large woody debris will be salvaged and randomly piled in the open space areas to provide additional wildlife habitat and shelter.

REFERENCES

Clallam County, *http://www.clallam.net/,* Zoning Maps online.

SEPA checklist, *Cay Road Pit, Mining Permit,* 5/19/95.

Washington State Department of Ecology, *Stormwater Management Manual for Western Washington,* August 2001.

Washington State Department of Natural Resources, *Best Management Practices for Reclaiming Surface Mines in Washington and Oregon,* December 1997.

LIMITATIONS

The services described in this report were performed consistent with generally accepted professional consulting principles and practices. There are no other warranties, express or implied. The services preformed were consistent with our agreement with our client. This report is prepared solely for the use of our client and may not be used or relied upon by a third party for any purpose. Any such use or reliance will be at such party's risk.

The opinions and recommendations contained in this report apply to conditions existing when services were performed. Team4 Engineering is not responsible for the impacts of any changes in environmental standards, practices, or regulations after the date of this report. Team4 Engineering does not warrant the accuracy of supplemental information incorporated in this report that was supplied by others.